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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/557,736	04/25/2000	Heng Liao	016491-002610US	9933

20350 7590 02/23/2006

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EXAMINER	
EL CHANTI, HUSSEIN A	

ART UNIT	PAPER NUMBER
2157	

DATE MAILED: 02/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/557,736	LIAO, HENG	
	Examiner	Art Unit	
	Hussein A. El-chanti	2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 December 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendment

1. This action is responsive to amendment received on Dec. 1, 2005. Claims 1-30 are pending examination.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3-4, 6-8, 27 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Hekhuis, U.S. Patent No. 5,414,650.

Hekhuis teaches the invention explicitly as claimed including a system and method for parsing incoming packets and classifying the packet flow (see abstract)

As to claim 1, Hekhuis teaches a method for identifying protocol encapsulation in received network data comprising providing language definition including a grammar for receiving incoming network data and processing it in accordance with a formal language processing technique using said language definition and said processing including parsing said network data using said grammar, said network data being organized into data packets (see col. 8 lines 55-col. 9 lines 37 and col. 10 lines 40-col. 11 lines 42, packets are parsed according to parsing rules to identify words where packets are classified accordingly).

As to claim 3, Hekhuis teaches the method of claim 1 further including scanning said incoming network data using lexical token scanning to produce plural lexical

tokens, said step of parsing including parsing said lexical tokens (see col. 8 lines 55-col. 9 lines 37 and col. 10 lines 40-col. 11 lines 42).

As to claim 4, Hekhuis teaches the method of claim 3 wherein said lexical scanning includes providing a set of regular expressions (see col. 8 lines 55-col. 9 lines 37 and col. 10 lines 40-col. 11 lines 42).

As to claim 6, Hekhuis teaches a method for processing data packets comprising:

providing a language definition including a grammar;

receiving plural data packets, each having a length not necessarily equal to one another; and

for each data packet, processing it according to a formal language processing technique using said language definition including lexically scanning said data packet to produce plural lexical tokens, parsing said lexical tokens using said grammar to produce one or more identified protocols, and processing said data packet based on said identified protocols (see col. 8 lines 55-col. 9 lines 37 and col. 10 lines 40-col. 11 lines 42, packets are parsed according to parsing rules to identify words where packets are classified accordingly).

As to claim 7, Hekhuis teaches the method of claim 6, including compiling said grammar to produce a grammar graph (see col. 8 lines 55-col. 9 lines 37 and col. 10 lines 40-col. 11 lines 42).

As to claim 8, Hekhuis teaches the method of claim 7 wherein said lexical scanning includes providing regular expressions for identifying said lexical tokens (see col. 8 lines 55-col. 9 lines 37 and col. 10 lines 40-col. 11 lines 42).

As to claim 27, Hekhuis teaches a network packet classifier comprising: means for receiving an incoming network packet; and

means for identifying protocol structure in said network packet including means for processing said network packet in accordance with a formal language processing technique using, a language definition, including a step of scanning to match patterns in its constituent data against plural regular expressions to produce lexical tokens and means for parsing through said lexical tokens using a grammar, said regular expressions and said grammar being defined by said language definition (see col. 8 lines 55-col. 9 lines 37 and col. 10 lines 40-col. 11 lines 42).

As to claim 30, Hekhuis teaches the classifier of claim 27 wherein said regular expressions include arithmetic specifiers and said means for classifying includes an arithmetic logic unit configured to perform operations in accordance with said arithmetic specifiers (see col. 8 lines 55-col. 9 lines 37 and col. 10 lines 40-col. 11 lines 42).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 2, 5, 9-11, 12-26 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hekhuis in view of Narad.

As to claims 2, 5, 9, 10 and 12-13, Hekhuis teaches a method for classifying data packets comprising processing incoming network data with said language definition in accordance with a formal language processing technique including scanning said network data using lexical token scanning according to said language definition, wherein said network data is treated as a stream of input bytes, said network data being organized into data packets, said scanning resulting in the identification of a data packet as belonging to one of a plurality of classes (see col. 8 lines 55-col. 9 lines 37 and col. 10 lines 40-col. 11 lines 42).

Hekhuis does not explicitly teach the "providing a deterministic finite automaton DFA comprising plural states, said step of scanning including recognizing data packets using said DFA including transitioning from one state to another".

However Narad teaches a method of parsing packets and generating DFA to identify a packet classification level (see col. 36 lines 19-col. 37 lines 22 and col. 103-col. 104).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify Hekhuis in view of including a DFA as taught by Narad. One would be motivated to include a DFA including recognizing the lexical tokens using the DFA in Riddle because doing so would allow the DFA to determine the classification of the data packet and map an ordered sequence of input events into a corresponding

sequence according to the control section of the data where the next state is uniquely determined by a single input event.

As to claim 11, Hekhuis teaches a method for processing data packets comprising:

Receiving a description of grammar rules in the form of a grammar packet classification language;

Compiling said grammar packet classification language to produce a grammar graph;

Configuring a classifier with said grammar graph;

Processing said data stream in accordance with a formal language processing technique using said grammar packet classification language including parsing said data stream with said grammatical packet classifier to identify a protocol structure in a received data packet; and

Processing said received data packet in accordance with said protocol structure (see col. 8 lines 55-col. 9 lines 37 and col. 10 lines 40-col. 11 lines 42).

As to claim 14, Hekhuis teaches the method of claim 12 wherein said lexical scanning includes providing a set of regular expressions (see col. 8 lines 55-col. 9 lines 37 and col. 10 lines 40-col. 11 lines 42).

As to claim 15, Hekhuis teaches the method of claim 14 wherein said regular expressions include arithmetic and logic operations (see col. 8 lines 55-col. 9 lines 37 and col. 10 lines 40-col. 11 lines 42).

As to claim 16, Hekhuis teaches the method of claim 15 wherein said regular expressions further include skip operations (see col. 8 lines 55-col. 9 lines 37 and col. 10 lines 40-col. 11 lines 42).

As to claim 17, Hekhuis teaches the method of claim 16 wherein said regular expressions further include data storage operations (see col. 8 lines 55-col. 9 lines 37 and col. 10 lines 40-col. 11 lines 42).

As to claim 18, Hekhuis teaches a method for classifying data packets comprising processing incoming network data with said language definition in accordance with a formal language processing technique including scanning said network data using lexical token scanning according to said language definition, wherein said network data is treated as a stream of input bytes, said network data being organized into data packets, said scanning resulting in the identification of a data packet as belonging to one of a plurality of classes (see col. 8 lines 55-col. 9 lines 37 and col. 10 lines 40-col. 11 lines 42).

Hekhuis does not explicitly teach the "providing a deterministic finite automaton DFA comprising plural states, said step of scanning including recognizing data packets using said DFA including transitioning from one state to another".

However Narad teaches a method of parsing packets and generating DFA to identify a packet classification level (see col. 36 lines 19-col. 37 lines 22 and col. 103-col. 104).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify Hekhuis in view of including a DFA as taught by Narad. One

would be motivated to include a DFA including recognizing the lexical tokens using the DFA in Riddle because doing so would allow the DFA to determine the classification of the data packet and map an ordered sequence of input events into a corresponding sequence according to the control section of the data where the next state is uniquely determined by a single input event.

As to claim 19, Hekhuis teaches the classifier of claim 18 wherein some of said regular expressions include arithmetic instructions and logic instructions, said memory assemblage further configured to contain said instructions, the classifier further including an arithmetic logic unit operatively coupled to said decompression logic and configured to execute said instructions (see col. 8 lines 65-col. 9 lines 30 and col. 36 lines 19-col. 37 lines 22).

As to claim 20, Hekhuis teaches the classifier of claim 19 further including at least one register operatively coupled to said arithmetic logic unit, said arithmetic logic unit further configured to store data into said register in response to a save instruction (see col. 8 lines 55-col. 9 lines 37 and col. 10 lines 40-col. 11 lines 42).

As to claim 21, Hekhuis teaches the classifier of claim 19 further including skip logic operatively coupled to said logic component and configured to skip over an amount of data in response a skip instruction (see col. 8 lines 55-col. 9 lines 37 and col. 10 lines 40-col. 11 lines 42).

As to claim 22, Hekhuis teaches the classifier of claim 18 wherein said network data packets can vary from one packet to another (see col. 8 lines 55-col. 9 lines 37 and col. 10 lines 40-col. 11 lines 42).

As to claim 23, Narad teaches the classifier of claim 18 wherein said DFA is in compressed form (see col. 8 lines 65-col. 9 lines 30 and col. 36 lines 19-col. 37 lines 22).

As to claim 24, Narad teaches the classifier of claim 23 wherein said DFA comprises plural non-default states and plural default states, and said memory assemblage comprises a base memory, a next-state memory, and a default-state memory; said base memory configured to contain address locations of said next-state memory, said next-state memory representing all of said non-default states, said default-state memory representing all of said default states (see col. 8 lines 65-col. 9 lines 30 and col. 36 lines 19-col. 37 lines 22).

As to claim 25, Narad teaches the classifier of claim 24 wherein said memories are random access memories (see col. 42 lines 35-67).

As to claim 26, Narad teaches the classifier of claim 24 wherein said memories are read only memories (see col. 42 lines 35-67).

As to claim 28, Narad teaches the classifier of claim 27 wherein said means for scanning includes a memory component configured with data to represent a deterministic finite automaton (DFA) (see col. 8 lines 65-col. 9 lines 30 and col. 36 lines 19-col. 37 lines 22).

As to claim 29, Narad teaches the classifier of claim 28 wherein said memory component is further configured to include said grammar (see col. 8 lines 65-col. 9 lines 30 and col. 36 lines 19-col. 37 lines 22).

Response to Arguments

4. Applicant's arguments have been fully considered but are not persuasive. Applicant argues in substance that Hekhuis does not disclose parsing packets in accordance with a formal language.

In response, Hekhuis teaches a system and method for parsing packets and classifying packets according to rules (see abstract). The system parses packets according to parsing rules. For example, the system may identify a packet as a cardinal packet by comparing the string identified from the packet to the set {"and", "br", "d", "f", "ing", "th"}. The matching of the string with the set {"and", "br", "d", "f", "ing", "th"} to identify a cardinal packet is interpreted by examiner to be the grammar used to parse the packets (see col. 8 lines 55-col. 9 lines 6). There is no limitation in the claim on the content on the grammar or how the grammar is being used to parse the packets and therefore Hekhuis parsing of packets by matching a string identified in a set meets the scope of the claim language "parsing said network data using said grammar". In addition, the received packets are compared to a dictionary i.e. "formal language", if the packet information is not in the dictionary, a token is assigned to the packet (see col. 12 lines 52-col. 13 lines 5). Therefore Hekhuis's comparing of packet information to a dictionary and adding tokens to the packets in accordance with the comparison meets the scope of the claimed limitation "processing incoming network data in accordance with a formal language".

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hussein A. El-chanti whose telephone number is (571)272-3999. The examiner can normally be reached on Mon-Fri 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571)272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hussein El-chanti

Feb. 5, 2006

ARIO ETIENNE
PRIMARY EXAMINER